

# Innovations and challenges in communicating regulatory measures

**Simon Morgan, Buchanan Computing**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 769276.

This document reflects only the author's view and that the Agency is not responsible for any use that may be made of the information it contains.



# Outline

- **What do we mean by *Traffic Regulation*?**
- **What changes and challenges does regulation need to address?**
- **Some innovations to help meet these**
- **Planning for the future, with a mixture of human drivers and semi- or fully-autonomous vehicles**

# Types of local traffic regulation



# Availability of road network



May a particular vehicle use the road at all at the time in question?



# Manner of driving

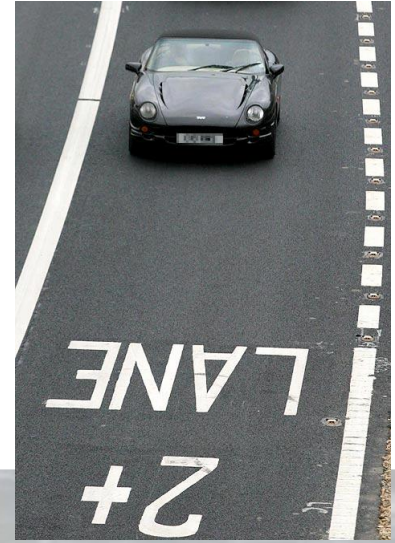
Speed limits

Keep clear areas

General driving competency



# Moving vehicle space



- Separating vehicle streams
- Cycle lanes
- Bus and other priority lanes
- Queuing space

# Managing the kerbside

Waiting and stopping restrictions

Providing for loading and other  
'place' functions



# Changes and challenges

- **More competition for road space, kerbside space and amenity space**
- **Need for authorities to achieve financial payback to at least cover management and enforcement costs**
- **Dynamic restrictions: different at different times of day**
- **Increasing in-vehicle IT and artificial intelligence**
- **How to maintain accurate geo-referenced data of restrictions**
- **Differences in standards, signing, law, etc. between countries and even between cities**



# Time dependent and dynamic restrictions

- At predefined times
- Fully dynamic, depending upon demand, weather congestion, etc.



# Communicating dynamic restrictions



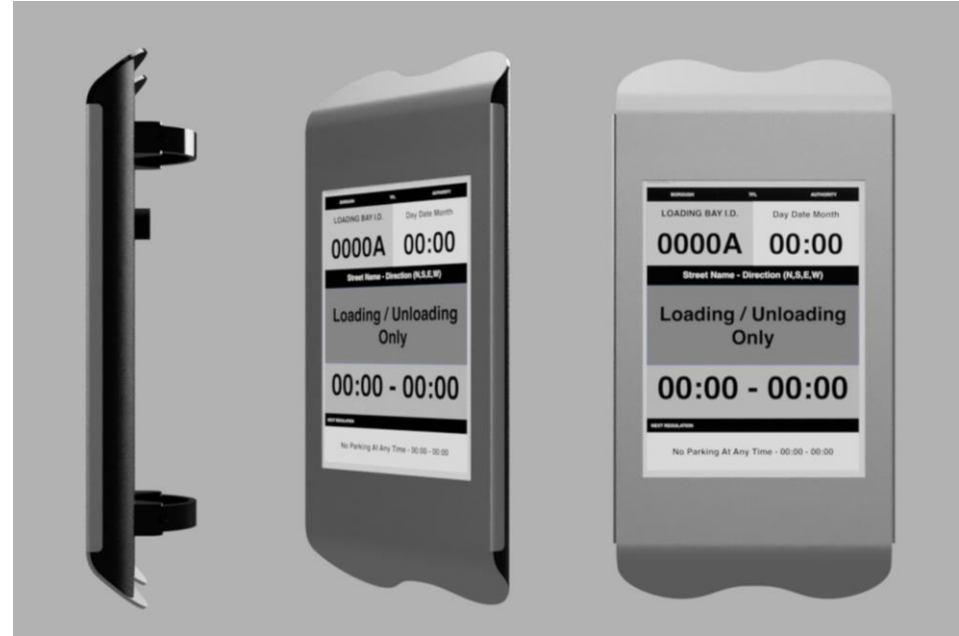
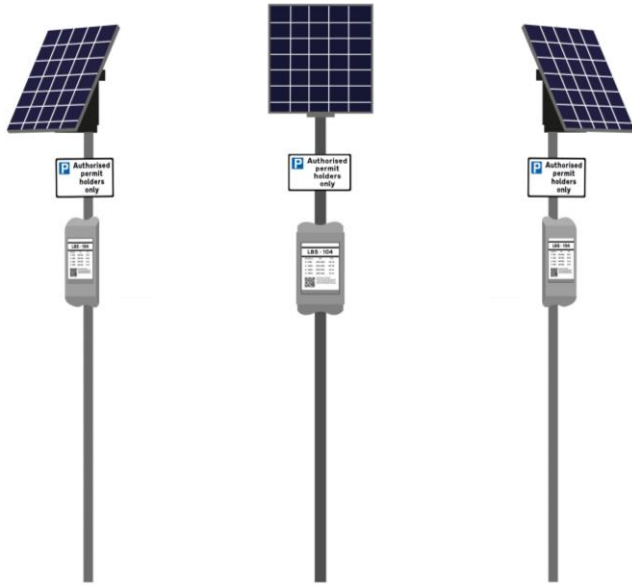
# Communicating dynamic restrictions





# Signs about to be tried in Southwark, London

# Communicating dynamic restrictions



# The future

## Which route for communicating to CAVs and in-vehicle displays?

- **Central data fed via 4G & 5G networks, using sat-nav for position**
  - Requires national (preferably international) repository and management of 'road rules'
  - Needs in-vehicle back-up data for areas with no signal
- **Camera technology and AI to spot and interpret signs**
  - Prone to errors in interpretation
  - Signs can be obscured by other vehicles and poor lighting
  - Signs need very high level of maintenance